

**Helicopter Satellite Communication (SATCOM): Development of  
Low-Cost Real-Time Voice and Data System for  
Aeronautical Mobile Satellite Service (AMSS)\***

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**Abstract**

Current helicopter communications are handled by VHF radio which is limited in coverage and operational range. There is a real need for helicopter SATCOM system to extend the coverage while meeting the unique conditions imposed by the helicopter operational environment. Existing fixed wing aircraft SATCOM systems have been considered but do not support helicopter specific requirements, including low cost, size, and weight. Furthermore, the helicopter's wide angle rapid flight maneuvers impose various restrictions on the antenna requirements for continuous coverage. In this paper, various diversity techniques have been investigated for optimum real-time voice and data processing. Coding, modulation, and interleaving are all employed to mitigate periodic signal blockage, due to the main rotor blades, and high Doppler frequency shifts. Also, potential low-cost omni-directional antenna designs and locations on the helicopter are presented.

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